Michigan Stream Team
December 7, 2005
Meeting Notes

In attendance were Ralph Reznick, Chris Freiburger, Joe Rathbun, Heather Rawlings, Shaun Duffy, John Suppnick, Dave Fongers, Steve Blumer, Joe Haas, Bob Kavetsky, Serio Pierluissi, Jim Hazelman, Coreen Strzalka, Abby Heaton.

By Phone: Jessica Mistak, Kyle Kruger, Pat Fowler, Anna Jaramillo, Susan Wells, Troy Zorn

Protocol Document

A minor change was made to the "Measuring Survey Errors" section on page 17. The document is now considered final with the explanation that it is a dynamic document and changes will be made by the Stream Team as appropriate. The document is now posted at;

http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-57034--,00.html

It is listed under "Reports and Fact Sheets"

Regional Curve Project

Ralph discussed how he has gotten approval to propose the Masters Student/ USGS option for developing the curves to his section management. This is the option developed by the Stream Team and would use Section 319 money and USGS dollars to fund the project. Additionally, MDOT has committed $100,000 to the project and DNR has obtained a grant to fund a survey team to collect some of the data. EDITORS UPDATE: DEQ management has approved developing the option recommended by the Stream Team.

Drain Commissioner Representation

MDOT has suggested that a representative of the Drain Commissioners Association be added to the stream team. Abbey Heaton from MDA is now attending stream team meetings and works with drain commissioners. She will make contact with the Drain Commissioners organization about the idea. Coreen Strzalka will contact MDOTs Drain Commissioner contact.

Database and Quality Control of Regional Reference Curve Information

The Stream Team will investigate various databases for use to hold the data collected for the Regional Reference Curve Project. Kristine Boley-Morse will set up the database for the project as part of data collection.

2006 Morphology Training

Jessica Mistak described the plans for Morphology Training sponsored by the AFS – Marquette Chapter for 2006. AFS looked at doing the follow up or second course in the series of courses to last year's course with Sandy Verry and Luther Adland. The AFS decided to hold the identical course to the one put on in 2005 again in 2006 and find a suitable location, possibly in SE Michigan, for the second course in the series for 2007. The 2006 course is scheduled for the week of June 19th in Marquette. Volunteers who have already had the training to serve as team leaders are needed.

DEQ LWMD Permit Fee Revisions

Joe Haas explained how the DEQ is investigating how to provide some kind of permit fee relief for projects that are doing environmental restoration. The Stream Team may be asked to offer technical comments on the proposal.

Small Dam Removal

Joe Haas told the team about legislation that State Senator Patty Burkholtz has introduced to exempt removal of small dams from LWMD DEQ permits.

Stream Enclosures

Joe Haas approached the stream team with an example permit application to enclose a stream. Joe wanted input on the morphological issues associated with such permit applications. This led to a discussion of the roll the Stream Team might have in assisting permit staff with technical questions on morphology. No clear mechanism was developed for bringing permit related issues to the Stream Team. The team felt it was appropriate to bring general, technical questions to the team for discussion but that the team should not generally be commenting on specific permits or participating in issuance of a permit.

Muscles in the St. Joe River

Craig Czarnecki presented information on a project to restore muscles in the St. Joe River.

Michigan Stream Team Meeting Minutes
January 25, 2006

Attendees:

Ralph Reznick
Steve Blumer
Pat Fowler
Anna Jaramillo-Scarborough
Coreen Strzalka
Joe Haas
Joe Rathbun
Jessica Mistak
Troy Zorn
Julia Kirkwood
Kyle Kruger
Heather Rawlings
Dave Fongers
Chris Freiburger
Cyndi Rachol
Steve Rheaume
Susan Wells
Bill Taylor
John Suppnick
Tracy Bronson
Kristine Boley-Morse

Commitments/Action Items:

- Reference Curve **grant participants** will provide lists of their contributions to the survey work (field work, equipment and supplies, making contact with landowners, etc.) to **Ralph R.** within a couple weeks.
- **Coreen S.** will ask MDOT surveying staff about the durability of total stations, how their software works and whether a robotic head total station is worth the extra money, and **Joe H.** will do the same of DEQ LWMD staff.
- **Chris F.** will make a presentation on RiverMorph at the next Stream Team meeting.
- **Cyndi R.** will make a presentation on the VIGIL database and a stand-alone database similar to the National Environmetnal Methods Index, at a future meeting.
- **Kristine B.-M.** will contact other states to see what databases they use
- **USGS** will generate the list of survey sites
- **Heather R.** will help contact appropriate landowners for permission to access survey sites.
- **Joe R.** will summarize papers and reports dealing with geomorphic QA/QC, and also contact Sandy Verry for QA/QC recommendations.
- **Team leaders** are needed for this year's geomorph 101 course, in Marquette from June 19-23.
- **Joe R.** will check with NCSU staff about conducting their geomorph courses in Michigan.
- **Ralph R.** will remain chair of the Stream Team until further notice.

Next meeting: Wednesday March 15, 9:00 – 12:00, at US FWS

Meeting Minutes

Introductions were made, and the meeting proceeded through the agenda.

Item 1a – Regional Reference Curve Project; Team Commitments:

Ralph R. has received permission from DEQ-Water Bureau management to proceed with putting contracts together using 319 funds. **Julia K.** will be the grant's Project Administer. **Grant participants** agreed to compile lists of their contributions to the survey work; field work, equipment and supplies, making contact with landowners, etc.; and provide them to **Ralph R.** within a couple weeks. The **Conservation District** will acquire a total station, and that will be most of their grant match. DEQ is also trying to acquire a total station.

Some Team members have experience with total stations, or recently practiced with one at a local dealer. Questions arose on their durability, their software, and the value of the more expensive robotic head total station. **Coreen S.** will ask these questions of MDOT surveying staff, and **Joe H.** will do the same of DEQ LWMD staff, and report back.

USGS will generate the list of survey sites; the list will be circulated among the Stream Team; and the Team members will choose sites they'll survey. Most will be surveyed by **Kristine B.-M.** and **USGS**.

Landowner permission will be an early requirement of the field work, and **Heather R.** will help contact appropriate landowners.

Item 1b – Regional Reference Curve Project; Database and Quality Control:

This project will generate or use three types of information that will have to be stored in some manner:

- Hard copies of the field notes
- Analytical software to process the raw data (RiverMorph? The Ohio DNR spreadsheets?)
- Final dataset of reference curve data points

Kristine B.-M. will set up and maintain the database, with MIST input on needs, information content, and the politics of its eventual home. Possible formats for the database include RiverMorph or the National Hydrologic Database (suggested by **Chris F.**) or something similar to the USGS Water Quality Lab's National Environmental Methods Index (http://www.nemi.gov), or to the VIGIL Network database (suggested by **Cyndi R.**). One question that needs to be determined is whether we want just the "final results" (the data points that make up the reference curves) or all the surveying data, etc., in the database. To further development of the database:

- **Chris F.** will make a presentation on RiverMorph at the next Stream Team meeting
- **Cyndi R.** will investigate the Vigil database
- **Kristine B.-M.** will contact other states to see what databases they use

It is likely that a future Stream Team meeting will be devoted to discussing details of the database.

Several aspects of project QA/QC were discussed:

- **Kristine B.-M.** will conduct a field recon at all the stations, and may also work with each MIST survey team (DNR, DEQ, etc.) for a station or two before they go off to collect data on their own. Her consistent participation is a key QA/QC component.
- An alternative way to optimize data comparability between survey teams is to create a "reference reach." Kristine would survey it first, and her data would be the standard against which other survey teams would be compared to. That would free Kristine from having to accompany each team for their first couple of stations.
- **Joe R.** will summarize papers and reports dealing with geomorphic QA/QC, and also contact Sandy Verry and Luther Aadland for QA/QC recommendations.
- It was recognized that the more qualitative aspects of the MIST field protocol, like identifying bankfull, will require more thought and documentation than the quantitative aspects like closing out the survey loops. It was agreed that the survey teams will make QA/QC recommendations after shooting a few stations.
- **Question:** Will we accept outside data for the database, from consultants, grantees, or from Stream Team members who survey stream reaches that aren't at USGS gage stations? Any outside groups will have to establish their qualifications (e.g., training by Rosgen or the North Carolina State University [NCSU] courses), have to follow the something similar to the MIST protocol, and document any deviations from the protocol.

Item 2 – Geomorph Training

Prior to the meeting, **Joe R.** circulated a list of the known 2006 training options, including all of the Rosgen courses, the NCSU courses, and the MI-AFS course.

Jessica M. announced that the MI-AFS would repeat the "Geomorph 101" course, taught by Luther Aadland and Sandy Verry. It will again be in Marquette with room for ~ 40 attendees, from June 19-23, and will cost $550 for AFS members, $600 for non-AFS members, and $500 for students. Jessica said that 4 to 8 team leaders would be needed to assist Luther and Sandy with the field work. Jessica also said that MI-AFS will sponsor a "Geomorph 102" course,

focusing on stream monitoring techniques (erosion pins, scour chains, etc.) in the summer of 2007. That course will probably be downstate, and will cost more than the 101 course. Considerable prep work will be necessary prior to the 102 course; suitable stream reaches for the field work need to be identified, scour chains, erosion pins, etc. need to be installed, and so on. The downstate Stream Team members will presumably take the lead on that.

It was agreed that it would be desirable to somehow buy field equipment and supplies (tapes, laser levels, etc.) specifically for the courses.

It was also agreed that it would be desirable to conduct additional geomorph training in 2006, given the number of interested agency staff, consultants and grantees. Options discussed included:

- US Fish and Wildlife trainers, who offer courses at USFWS's national training center in Morgantown, WV
- Bringing the NCSU courses here. **Joe R.** will check with their staff to see if that is possible.
- Bringing in a 'big name' like Richard Hey, perhaps to offer 1 or 2 day seminar specifically for higher-level agency staff (perhaps using a grant from the Great Lakes Commission or 319 money)
- Andy Ward's course
- Conducting a 1 or 2 day seminar taught by MIST members. This would require preparation of lecture materials and identification of sites for field exercises.

Item 3 – Stream Team Mission Statement

The mission statement text presented in the last meeting as reviewed, and it was agreed that subsection (d) needs to be better defined ("Serve as a technical resource to Michigan agencies and interested groups on morphology issues.") **Dave F.** suggested the text focus specifically on geomorphology. **Pat F.** suggested that we provide geomorphic guidance and examples of applications (showcase projects). **Joe H.** suggested we expand the statement to mention natural channel design, based on the regional reference curves. The final text on the web page is "Serve as a technical resource to advance stream morphology science to Michigan agencies and interest groups."

Other issues that might be added to our Mission Statement include training, protocol development, and reviewing the technical merits of agency policy. It was agreed that the Stream Team should stick to technical guidance and activities, and avoid overtly setting policy, reviewing permit, etc.

Another aspect of the Team's mission is establishing BMPs for geomorphology. Two options were discussed:

- Having the Team plan and execute special studies of BMP design and execution
- Having the Team review special BMP studies proposed by others, or provide guidance to assessing upcoming projects

An example of the second approach is the participation by **Joe R.** and **John S.** in the sedimentation BMP monitoring guidance protocol being developed by the Conservation Resource Alliance (CRA).

Item 4 – Web Page

Dave F. reviewed the draft Stream Team web page, handed out an example, and solicited comments. General opinion was to put the web page on one of the State of Michigan web pages, and others would link to it. The Stream Team web page was recently posted on the DEQ web site, as follows:

http://www.michigan.gov/deq/0,1607,7-135-3313_3684_3724-133139--,00.html

Alternatively, go to www.michigan.gov/deqhydrology, and then look for Michigan's Stream Team listed under Related Links.

Item 5 – Stream Flashiness Index

Dave F. briefly reviewed a handout describing DEQ's efforts to calculate the Richards-Baker flashiness index at a couple hundred USGS gages stations around the state, and promised more information as that work proceeds. Among many possible uses of this information will be a trend assessment of stream flashiness (hydrologic stability) at USGS gages with a sufficiently long period of record (≥ 20 years).

Item 6 – Woody Debris Guidance

Joe R. briefly reviewed a handout describing the guidance DEQ is preparing for its grantees on a decision-making process for managing woody debris jams. Suggestions included:

- Substituting the "clean and open" method for "Fully Remove"
- Changing "woody debris" to "woody structure"
- The document should be reviewed by DEQ District staff, in both the Water Bureau and Land and Water Management
- Incorporating a description of minor ($50 permit application fee) and major ($500 permit and public notice) operations
- Including a description of Land and Water Management's rules for ~~debris~~ structure removal
- Including a description of DNR's Natural Rivers rules
- Including a caution about removing debris jams around USGS gages

Item 7 – Issues of Importance from Team Members

It was unanimously agreed that **Ralph R.** would remain Stream Team chair for the foreseeable future.

Joe R. mentioned that DEQ is preparing guidance on assessing stream geomorphic and hydrologic stability for its NPS grantees who propose stream BMPs like bank stabilization or channel reconstruction. Draft guidance will be available by the spring, and will be submitted to the Team members for review and input.

Next Meeting: March 15, 2006, at the US Fish and Wildlife Service office; 9:00-12:00 AM.

(Recorded by Joe Rathbun, MDEQ)

Michigan Stream Team Meeting Minutes
March 15, 2006

Attendees:

Ralph Reznick	Heather Rawlings
Steve Blumer	Dave Fongers
Pat Fowler	Chris Freiburger
Coreen Strzalka	Cyndi Rachol
Joe Haas	Steve Rheaume
Joe Rathbun	Susan Wells
Kyle Kruger	John Suppnick
Lidia Szabo Kraft	Bob Kavetsky
Jim Hazelman	Kristine Boley-Morse

Commitments/Action Items:

- **Susan W.** will investigate the suitability of ArcGIS Survey Analyst software for use as a reference curve database and report back.
- **Kristine B.-M.** will continue to ask other states about their reference curve databases.
- **Ralph R.** and **Dave F.** will look into the details of having a state agency's website host a reference curve database.
- **Pat F.** will ask Paul Seelbach if he's finished the GIS-based Rosgen classifications for Michigan streams.
- **Joe R.** will contact Indiana DEM about the status of their geomorphology data collection plans, and whether they could help with the St. Joseph River.
- **Pat F.** and **Heather R.** will look into getting a loaner vehicle for the field work.

Next meeting: Tuesday May 9, 2006, 9:00 – 12:00, at US FWS

Meeting Minutes

Introductions were made, and the meeting proceeded through the agenda.

Item 1a – Regional Reference Curve Project – Database and Quality Control

Four databases were discussed. **Lidia S. K.** of the Institute for Fisheries Research discussed the National Hydrography Dataset (NHD), created by USGS and EPA. This dataset assigns unique codes to individual stream reaches (usually between stream confluences) and other water bodies. Current coverage

is nationwide at a scale of 1:100,000, and coverage at a scale of 1:24,000 is under development.

Pros of the NHD	Cons of the NHD
Available on web Maintained by the USGS Compatible with ArcView 3 or ArcGIS.	Does not process data We will need to do reach indexing

NHD homepage = http://nhd.usgs.gov
Available datasets = http://nhdgeo.usgs.gov/viewer.htm

NHDPlus is a more advanced package and calculates drainage areas.

NHDPlus homepage = http://www.horizon-systems.com/NHDPlus/

Cyndi R. outlined some primary goals for the reference curve database, including web accessibility, links to other studies or gage data, and inclusion of all data types (curves, raw data, photos, field notes, etc.). She then discussed two database options; the existing Vigil Network, or creating a new database based on an existing design such as USGS's suspended sediment database.

Pros of the Vigil Network	Cons of the Vigil Network
Already exists, and contains historic data Low-tech archival methods	Data not QCed Data not immediately available online; must be submitted to USGS-Arizona Not searchable

Vigil homepage = http://wwwpaztcn.wr.usgs.gov/vigil

Creating our own database using the suspended sediment (SS) database as a template has the following pros and cons:

Pros of a SS-like Database	Cons of a SS-like Database
Searchable Receive data from anyone Low-tech archival methods Input screened by data manager	Needs to be constructed Need to identify data manager Does not process data

Suspended sediment database homepage = http://co.water.usgs.gov/sediment/

Chris F. reviewed the RiverMorph software, and its pros and cons are below:

Pros of RiverMorph	Cons of RiverMorph
May use to process data anyway Data import/export easy Automatically creates reference curves Contains data from other states	Expensive, and not likely to be purchased by all data users Curves not interactive; can't click on a point and see raw data

The Ohio DNR's Excel-based software is similar to RiverMorph but not as comprehensive. It is free, however.

Ohio DNR software homepage = http://www.dnr.state.oh.us/soilandwater/streammorphology.htm

Susan W. mentioned that ArcGIS Survey Analyst software might be appropriate for our needs, and she will look into it further. Its homepage =

http://www.esri.com/software/arcgis/extensions/surveyanalyst/index.html

Kristine B.-M. is talking to other states with reference curves about their databases. She has more calls to make, but so far RiverMorph is a popular choice.

The broader issue of how to one of the state agencies to host a database on its website needs further investigation, and **Ralph R.** and **Dave F.** will look into that.

Cyndi R. handed out a summary of the State's Wellogic database, used by well drilling contractors to enter their water well records. After the meeting **Dave F.** looked into it further, and below is his take on it (emailed to Joe R. on 3/16/06):

I've talked to Anita Ladouceur, WB, about Wellogic. Currently people add data to that system by filling it in on their computer screen. For the regional reference curves, we would much more likely want to enable people to upload files in a predetermined format, an option they are considering for Wellogic but haven't implemented yet. It also isn't clear to me if there would be any post processing expected of our data by the application, which Wellogic does. That said, Wellogic does accept data from a variety of sources and back it up, which is what we need. Wellogic was written by an outside vendor. Its initial cost was ~$250,000 and the bill so far, for maintenance and enhancements is at ~$700,000. Our application should be less complex and therefore cheaper. We could request a meeting with Tim Diebold to get a better feel for what this would cost, but I'm thinking that if it's anywhere near the cost of Wellogic, paying DIT (and possibly an outside vendor) to develop this and coordinate paying for it among so many agencies is too big a hurdle. If we want to pursue this, we need to be prepared to better define the data we want to collect and how that data would be displayed or processed.

Item 1b – Regional Reference Curve Project – Team Commitments:

Ralph R. reported that arrangements for the project are moving along, but that he hadn't received any commitments by Team members to survey stations this year. It was agreed that commitments will be easier to make when the list of gage stations is available.

Item 2 – 2006 Training Update & Discussion of Additional Training

Jessica M. reports that there's still room in the Geomorph 101 course in Marquette in June.

Heather R. looked into a couple of alternatives to the Sandy/Luther course. It would cost approximately $45,000 to bring Dave Rosgen here, and he probably wouldn't be available until 2007 at best. Another possibility is the *Introduction to River Science and Management* course conducted by the US FWS's National Conservation Training Center. They could come here for perhaps $8,000. This is the first of several geomorph courses US FWS conducts, and would be aimed at permit reviewers and administrators. According to an outline Heather handed out, the course is normally 3.5 days of lecture and 0.5 days of site visits. It was decided we could host it in the Lansing area in 2007, given that Sandy & Luther's Geomorph 102 course is planned for 2007.

Joe H. reported that University of Wisconsin Extension is giving a course on culvert replacements, in Iron River this spring. The course is full, however.

Joe R. mentioned that Wisconsin Extension expects to give its 4-day dam removal short course somewhere in the Northeast late in 2006. That course contains a lot of discussion of the geomorphic impacts of dam removal projects.

Item 3 – Stream Team Mission Statement

There was no comment on the revised Team Mission Statement.

Item 4 – Issues of importance from those in attendance:

Pat F. will ask Paul Seelbach if he's finished the GIS-based Rosgen classifications for Michigan streams.

Chris F. and **Kyle K.** noted DNR's recent increased interest in monitoring stream restoration projects, and that a committee is preparing monitoring guidelines for four restoration techniques; bank stabilization, sediment traps, instream cover, and artificial riffles. This may result in the creation of a habitat restoration "prescription" for larger projects, which would have to be reviewed and approved before work could start. **Joe R.** and others noted that the Conservation Resource Alliance is completing a monitoring protocol for 3 BMP types; bank

stabilization, road/stream crossings, and sediment traps; which should be finished by June 2006. The draft protocol focuses on three levels of monitoring:

- Level 1 = qualitative monitoring; photos, BEHI, etc.
- Level 2 = Level 1, plus appropriate geomorphic monitoring techniques; pebble counts, transect and longitudinal profiles, etc.
- Level 3 = Levels 1 and 2, plus bedload and suspended sediment sampling for load calculations.

The final protocol will be forwarded to the Team members when complete.

Heather R. said that US FWS is interested in geomorphic data for the St. Joseph River (the one tributary to the Maumee River), including the reaches in Indiana and Ohio, and has money to pay field crews to make the measurements. Some data may have already been collected by Ohio DNR or the University of Toledo. Indiana DEM is also interested in starting a geomorphology data collection effort, and **Joe R.** will contact them to see how far along they are.

Chris F. raised the issue of getting a field vehicle for the field work. **Pat F.** and **Heather R.** will look into different options.

Dave F. showed a possible Stream Team logo design that could be used on hats, shirts, etc. Team members can follow up with Dave if they want to suggest changes to the logo.

Next Meeting: Tuesday May 9, 2006, at the US Fish and Wildlife Service office; 9:00-12:00 AM.

(Recorded by Joe Rathbun, MDEQ)

Stream Team Meeting Minutes
May 9, 2006

Attendance

Ralph Reznick	Heather Rawlings
Steve Blumer (by phone)	Dave Fongers
Joe Haas	Chris Freiburger
Joe Rathbun (part)	Cyndi Rachol
Kyle Kruger	Steve Rheaume
Jim Hazelman	John Suppnick
Abby Eaton	Kyle Kruger (by phone)
Kristine Boley-Morse	Faith Fitzpatrick

Faith Fitzpatrick (fafitzpa@usgs.gov) from the USGS in Wisconsin is involved with a similar effort in Wisconsin to generate reference curves.

Quality Assurance Considerations for the Reference Curve Project

The number of transects to survey per reach was discussed. The protocol specifies a minimum of one riffle transect and this should not change. However it was agreed that three transects will be surveyed for the first 10 sites in the reference curve project. Other suitable riffle transects will be surveyed as a first choice otherwise "run" transect will be surveyed to total three transects per site for the first 10 sites. After the first 10 sites are completed the data will be reviewed to see if more than 1 transect is warranted at other sites.

There was discussion about doing pebble counts within the wetted width, from toe of bank to toe of bank or over the entire bankfull width. No consensus was reached but it was agreed that the purpose of the measurements should be kept in mind when specifying a procedure. Faith reported that she records actual pebble measurements instead of tallying numbers per category to give a more sensitive tool for detecting change over time. No changes to the protocol were agreed to.

It was decided that the protocol should be changed to say that monuments should be set to define transects and should be placed on both sides of the river and should consist of ½ inch rebar at least 24" long driven flush and referenced to local landmarks. Faith suggested a lag bolt in a tree to identify witness trees and this also makes a good elevation bench mark. Monumenting the ends of longitudinal reaches would remain optional for the reference curve project.

There was a discussion of survey loop closure error including what is typically encountered but no changes were needed to the protocol document.

The need for peer review of the collected data was suggested. Since Wisconsin is developing regional curves on a schedule similar to Michigan's it was agreed that we would compare results periodically to serve as peer review.

There was discussion about obtaining replicate data and how to accomplish this. The Stream Team committed to replicating measurements on 10% of the sites surveyed for the reference curve project for quality assurance purposes. Further discussion is needed to determine exactly how this will be done. There are about 8 sites in Michigan where stream flow gages have been moved slightly in a watershed but the sites are considered identical for flow measurement purposes. A record of flow and stage discharge curves are available for both sites. These sites will be reviewed by the USGS to see of they would be suitable for the project and as replicate measurement sites. Alternatively any reach could be doubled in length with the additional length serving as the replicate and both reaches could then use the same gage datum. In addition Steve Rheaume stated that he would have a second crew periodically visit some sites already surveyed and double check measurements.

It was suggested that the latest information be obtained from the USGS on reference marks and bench marks at gage locations to avoid using old data which might have changed.

Another suggestion was that water surface elevations should be read throughout the day at a single location to document any changing stage. Also the water surface elevation in a transect should be read at 3 or more locations where water depth is also measured because these points are the basis for converting all water depth measurements in the transect to ground surface elevations.

Databases

A number of options were discussed but no decision was made on how the data will be archived or stored. This discussion was put off for a later date when example data sheets filled out in the field are available from a site to help focus the discussion.

Training

The geomorphology training sponsored by the American Fisheries Society June 19-23 in Marquette is full. DEQ grantees requested more detailed follow up training to the 1 hour that Joe Rathbun provided in spring 2006. There was general agreement that this would be worth setting up by the Stream Team.

Other Issues

Ralph reported that the contracts necessary for the reference curve project to move forward have not been signed yet but there does not appear to be any major obstacles for this to occur.

The Michigan Stream Team web page has a new format and a new web address: (www.michigan.gov/streamteam).

Ralph will work with Abby Eaton to get a county drain commissioner on the Stream Team.

Joe Hass reported that legislation has been proposed to streamline the permitting process for removal of small dams in Michigan.

Next Meeting : July 19, 2006 USFWS Office in East Lansing

Michigan Stream Team Meeting Minutes
August 1, 2006

Attendees:

Ralph Reznick	Heather Rawlings
Steve Blumer	Dave Fongers
Janelle Hohm	Chris Freiburger
Joe Haas	Cyndi Rachol
Joe Rathbun	Steve Rheaume
Kyle Kruger	John Suppnick
Jim Hazelman	Abby Eaton
Chris Potvin	Jessica Mistak

Commitments/Action Items:

A subcommittee of **Chris F., Dave F., Heather R., Jessica M.** and **Joe R.** was identified to plan the next training course(s) for 2007. Team members should send potential course site suggestions to **Chris F**., by the end of August.

Joe R. will compile a list of geomorph training opportunities for 2007, with input from the Team members.

Joe R. volunteered to put together a stock power point presentation (1+ hours?) on basic geomorphic principles, with input from the Team.

Next meeting: Postponed until late September – early October, to inspect the Dimondale dam removal project

Meeting Minutes

Introductions were made, and the meeting proceeded through the agenda.

Item 1 – Regional Reference Curve Project Update

Cyndi R. summarized the work she and Kristine have done. They've reconned approximately 14 stream reaches in the St. Joseph River watershed, and had completed data collection on the South Branch of Hog Creek and a station on the Coldwater River. A couple of the prospective stations weren't suitable. **Jessica M.** has completed surveys at 6 sites in the Upper Menominee River watershed, and **Kyle K.** will be surveying stations on the Boardman River. **Cyndi, Kristine and Heather R.** will be working in the northeast Lower Peninsula in early August. **Cyndi** or **Kristine** will notify local Stream Team members when they're working

in the area. They will also get everyone their information sheet and access permission letter, for any Team member to edit and use (since posted on the Stream Team web site).

Revisiting previously surveyed sites as a QC check was discussed.

The issues of stratifying the data, and collecting data from a range of watershed sizes, were discussed. **Joe R.** noted that other regional curves have found stratifying by Rosgen stream type improved the correlations, as well as by physiogeographic region. **Chris F.** suggested collecting data from multiple sites with similar watershed sizes will not be a problem given that many will be in different physiogeograohic regions. Conversely, Richard Hey has a paper out saying physiogeographic region is not important for stratifying reference curve stations. It was noted that the biggest current stream restoration site in the State is the Dead River in the U.P., at approximately 100 square miles, and that we'll want the curves to include watersheds out to at least that size. That shouldn't be a problem; Joe R.'s earlier work included stations draining up to 1,000 square miles, on the Cass River and Grand River.

Heather R. noted that she has access to grant funds of less than $5,000, for purchases like gasoline and wet suits.

A note of interest that came up after the meeting: MDEQ recently surveyed two locations on the Cedar River in Antrim County, as part of a post-BMP study. Several previously established transects were difficult or impossible to resurvey because the rebar and other benchmarks were unusable for one reason or another. This lead to a couple of ideas for backing up our transect locations:

- Take a compass shot from one end of the transect to the other, so that if one benchmark is destroyed, the transect can be recreated with just the benchmark on the other end.
- Establish other benchmarks near the study reach (nails in trees, etc.), with known elevations.

<u>Item 2 – Flashiness Report</u>

Joe R. and **Dave F.** reviewed progress on the stream flashiness report. Flashiness data have been calculated at over 280 USGS gage stations around the state, and a report of the results is under review by DEQ and USGS. When approved for release it will be provided to all Stream Team members as well as posted on the Team web site. Suggestions for other audiences should be sent to Joe or Dave – NPS grantees, the consulting community, drain commissioners, etc.

Item 3 – 2007 Training Plans

Jessica M. reviewed this year's geomorph 101 course, held the week of June 19 in Marquette. There were 35 participants and 8 team leaders, and the post-course feedback was very complimentary. During the course a reference curve station on the Iron River was surveyed. Twenty-seven of the 35 students expressed an interest in taking geomorph 102, along with 34 of last year's 40 students. (**Joe H.** and a couple colleagues were to take the 102 course, in Minnesota, later in August.)

Training options for 2007 were discussed, and include:

- Geomorph 102, by Luther Aadland and Ian Chisholm (from Minnesota)
- The US FWS training ("Introduction to River Science and Mangement"), which can be performed in Michigan
- Higher-level training, perhaps by Richard Hey

Heather R. noted that she has access to grant money to possibly bring in speakers for training. **Jessica M.** stated that AFS-Michigan can help with certain course logistics like education credits.

Chris F. listed the requirements of the geomorph 102 course:

- 1 stable and 1 unstable reach, preferably in the same or adjacent gravel bed streams
- pre-course work = survey a long pro and several cross-channel transects, do pebble counts and install erosion pins and scour chains, a year or so ahead of the course
- the stream reaches do not have to be gaged.

Other factors for holding any course include availability of a sufficiently large meeting room, and site access suitable for up to 40 students and multiple vehicles. Proximity to a major airport is also desirable if the course is expected to draw a significant number of students from outside Michigan. Possible sites discussed included streams near Grand Rapids and in southeast Michigan. It was noted that gravel bed streams are rare in some parts of the state. It was agreed that Team members would send potential course site suggestions to **Chris F**., by the end of August.

Chris F. suggested that course fees might be adjusted or grant funds obtained to buy 4 sets of surveying equipment for the course; laser levels, rods, tapes, etc. One possibility would be a grant from AFS, which would then own the equipment and store it in different places around the state.

One dilemma not discussed is that there's far more interest in a higher-level course than the ~ 40 students we've dealt with in past courses. Suggestion: we

should produce another list of all known geomorph training opportunities (Rosgen, US FWS, Luther and Sandy, etc.) for 2007 and supply that to the Stream Team for dissemination, as well as post it on the web site. **Joe R.** will compile that list – please send any suggestions to him as they come up.

A subcommittee of Chris F., Dave F., Heather R., Jessica M. and Joe R. was identified to plan the next field survey training, what ever it turns out to be.

Other training and continuing education options were also discussed:

- **Cyndi R.** suggested a more general geomorphology conference, including some "big names" like Hey and Rosgen – similar to the workshop in Champaign, IL a few years ago.
- **Ralph R.** suggested a presentation of on-going projects to the Stream Team, and/or a field trip; dam removal projects and the Dead River restoration are possibilities. This could substitute for a regular Stream Team meeting. Deconstruction of the Dimondale dam near Lansing will begin sometime in September, and Ralph will try to arrange for a walk-through session with Sandy Verry.
- **John S.** suggested assembling a collection of pictures of stream restoration projects and structures, as well as annotated pictures of bankfull indicators, and put both on the Stream Team web site.
- **Steve B.** suggested replicating the training video contained on the U.S. Forest Service's "Guide to Identification of Bankfull Stage in the Northeastern United States" four CD set, using several of our reference curve sites.
- **Chris F.** and others noted the interest in shorter training sessions (~ 2 days), held in multiple places around the state. **Heather R.** stated that the US FWS 4-day course can be shortened, and **Joe R.** stated that DEQ has received requests for short geomorph workshops and performed an extremely contracted 3-hour lecture & field demo at the nonpoint source grantee training this past spring. Other options for short training workshops or presentations discussed were:
    - Regional drain commissioner meetings; there are 4 around the state, and the next ones are the NW part of the state, in Gratiot Co. on Oct. 5; NE, in Saginaw Co. on Oct. 13, and the SW, in Branch Co. on Oct. 27. Invitations to join the Stream Team could be made at those meetings. **Joe R.** volunteered to put together a stock power point presentation (1+ hours?), with input from the Team.
    - Focusing on case studies; Dead River, Carrier Creek, drains, culverts, the Meanders project, or urban areas were suggested.
- It was noted that, as we consider shorter training sessions, we need to keep in mind the target audience and what they'll get out of the training; a 1+ hour power point presentation, or even a few hours of lecture and ½ day in the field, will introduce concepts but not enable anyone to design a channel restoration project, or review someone else's design.

Item 4 – Issues of importance from those in attendance:

Dave F. asked for expressions of interest in Stream Team apparel, and received several positive responses.

Next Meeting: Postponed until late September – early October, to inspect the Dimondale dam removal project

(Recorded by Joe Rathbun, MDEQ)

Michigan Stream Team Meeting Minutes
October 4, 2006

Attendees:

Ralph Reznick	Dave Fongers
Joe Haas	Chris Freiburger
Joe Rathbun	Cyndi Rachol
Kristine Boley-Morse	Steve Rheaume
Coreen Strzalka	Mike Townley

Commitments/Action Items:

- **Ongoing – Stream Team members will work on making arrangements to hold the "Geomorph 102" course, in the Lansing area in 2007.**
- **Ralph and Joe R. committed MDEQ to completing the pre-course surveying on Carrier Creek.**
- **Dave will email a sign-up form for the Stream Team apparel.**

Next meeting: Tuesday, December 12, 2006 – 9:00-12:00, location to be determined.

Meeting Minutes

The meeting was held at the Dimondale Fire Station. Introductions were made, and the meeting proceeded through the agenda.

Item 1 – Regional Reference Curve Project Update

Kristine and **Cyndi** have successfully completed the full geomorphic survey at 9 locations in the southern half of the Lower Peninsula, and **Jessica** and crew have surveyed 6 locations in the Upper Peninsula. An additional survey was performed by the Team during our 2005 training on Augusta Creek. The full survey is taking about 2 long days per site.

Kristine, **Cyndi**, and staff from the US Fish and Wildlife Service office in Alpena have also completed site recon visits at 9 locations in the northeast Lower Peninsula, and they will be visiting additional sites in the next couple weeks. A few sites are of questionable utility for this project, including the gage on the Rainy River near Ocqueoc where the river channel alternates between narrow bedrock-controlled reaches and wider sandy reaches. They could use help with more recon visits yet this year.

The survey protocol is working well, and two small changes have been made to it:

- Bankfull measurements are made at three riffle cross-sections instead of one, to assess the precision of these measurements.
- A compass line measurement is made on the cross-channel transects to help locate them in future surveys.

Kristine and **Cyndi** will assess the necessity of doing three cross-sections. The Team will consider adding these modifications to the protocol at a future meeting.

Item 2 – 2007 Training Plans

We're looking to hold the "Geomorph 102" course next year sometime, and a committee of **Chris**, **Jessica**, **Dave**, **Heather**, **Coreen**, and **Joe R**. will be working to make that happen. **Joe H.** and colleagues took the course earlier this year, and he commented on some of its specifics. A major factor in deciding where to hold the course is finding suitable streams for the field work, and Stream Team members sent suggestions to **Chris**; candidates were different streams in southeast Michigan, the Grand Rapids area, the Marquette area, and the Lansing area. **Chris** also talked to Sandy Verry about the requirements of the course. After some discussion, a vote was taken and Lansing beat out Marquette. Suggested Lansing-area streams are the Battle Creek River in Charlotte and Carrier Creek in Lansing. Pre-course survey work is largely complete in the Battle Creek River, and **Ralph** committed MDEQ to installing scour chains in Carrier Creek. The date of the course will depend on the instructor's schedules, and at the moment late June, 2007, seems likely. It was agreed that we'd limit the course to ~ 40 students plus team leaders. Several venues were discussed for the lecture parts of the course; MDOT training rooms, the state Secondary Complex, the Michigan Wildlife Federation in Bath. Important factors in this choice include free or low-cost conference room adequate for 50-60 people, free parking, and proximity to the streams and hotels and restaurants. Other issues to work on include choice of hotel; transportation to the field; and food. Since the meeting, **Joe R.** has volunteered to organize the food; lunches, snacks, and maybe a dinner social.

The American Society of Civil Engineers may co-host the course; newest Team member **Mike Townley** of MDOT will look into that.

Someone, perhaps **Kristine**, noted that funding support ($500) is available from the River Network. Further investigation by **Tracy Bronson**, Executive Director of the Calhoun Conservation District found that this support is only available to members of the River Network. Tracy's message is below.

"*Here's the website for River Network's re-grant (for training):*
http://www.rivernetwork.org/howwecanhelp/index.cfm?doc_id=95

What they might do is promote the training and provide grants to eligible attendees (members of River Network). For more info, I'd recommend contacting Katherine Luscher at River Network at the number or email listed on the above mentioned web page. If you mention that we're involved with the stream team and also a member of River Network, that might help??!!"

Item 3 – Stream Team Apparel

Dave passed around information on apparel choices; colors of t-shirts, polo shirts, and sweatshirts. He will email out a sign-up form.

Giving a Stream Team t-shirt to each attendee of next year's short course (perhaps color-coded by field team) was discussed, and tentatively agreed to.

Item 4 – Issues of importance from those in attendance:

Chris and **Kristine** noted that the last public meeting about the dam removal in Charlotte would be October 11 at 7:00 PM in Charlotte.

Joe R. said he's looking to bring the University of Wisconsin's 3-day dam removal short course to Michigan. **Jessica** took the course a few years ago, when it was in New Hampshire. MWEA and/or MI-AFS may co-host the course. Potential locations include areas where dams have or may come down – Lansing, Traverse City, or Kalamazoo.

The meeting then adjourned to join a second meeting with MDEQ's floodplain engineers, where the combined audience heard:

- An account of a stream erosion problem at a dam removal site in southeast Michigan, described by **Patrick Durak** of MDEQ-LWMD-Warren.
- An account of the recently completed Dimondale dam removal, described by **Ralph**.

These presentations were followed by a tour of the former dam site, and lunch at Mike's Café.

Next Meeting: Tuesday, December 12, 9:00-12:00, at a location to be determined.

(Recorded by Joe Rathbun, MDEQ)

Michigan Stream Team Meeting Minutes
December 12, 2006

Attendees:

Ralph Reznick	Dave Fongers
Joe Haas	Cyndi Rachol
Joe Rathbun	Steve Rheaume
Coreen Strzalka	Steve Blumer
Stewart Cogswell	Mike Townley
Heather Rawlings	John Suppnick
Julia Kirkwood	Susan Wells
Mary Weidel	Pat Fowler

Commitments/Action Items:

- **Cyndi** and **Kristine** will process the field data collected in 2006 and present it at a later meeting.
- **Joe R.** will compile a list of available power point talks that might be useful to the Team members.
- The **Geomorph II subcommittee** will meet on Jan. 17 at MDNR, and again after the January Stream Team meeting.

Next meeting: Tuesday, January 30, 2007, from 9:00 to 12:00 AM at the State Secondary Complex.

Meeting Minutes

The meeting was held at the USGS Office in Lansing. Introductions were made, and the meeting proceeded through the agenda.

Chris and **Kristine** sent their regrets – they were busy with the Charlotte dam removal.

Item 1 – Regional Reference Curve Project Update

Cyndi gave an update of the work she and **Kristine** performed for the reference curve project:

- Completed surveys at 8 locations in 2006 (in addition to **Jessica**'s locations in the UP)
- Performed recon trips to gage sites in watersheds draining to the Saginaw River
- They may do more recons this winter

The reference curve database was discussed:

- All data collected by **Cyndi** and **Kristine** in 2006 are in RiverMorph
- Question: does **Jessica** store her data in RiverMorph?
- Standard field forms should be agreed to – the ones in the Rosgen field notebook were recommended
- Question: if **Kristine** is the data processor, should she receive both electronic data and paper field forms?
- Question: should those who don't have RiverMorph use the Mecklenburg software, and give that to **Kristine**?
- Question: will data stored in RiverMorph always be available to us in the future?
- Goal for all data collectors: work up data within 30 days of collection.
- File names – we need a naming convention for data files. Use USGS gage number? Still need a convention for ungaged reaches.
- Still unresolved – the final repository for the data. USGS? MDEQ? RiverMorph?

It was noted that **Cyndi** and **Kristine** are using a laser level, and that MSU has not yet purchased a total station.

Item 2 – Change to Protocol

Our pebble count (PC) procedure was discussed, and it was noted that Rosgen now recommends:

- Reach-average PC: collect only 5% of the pebbles from the stream bank; our procedure = 20%
- Riffle PC: collect pebbles only from the wetted channel

Cyndi and **Kristine** noted which pebbles were collected from the stream bank vs. from the wetted channel, and will present these data at a later meeting. Question: did **Jessica** do that?

Also discussed measuring stream length – measure in the thalweg, or along the bank edge? Our protocol says along the bank edge, and Rosgen concurs; he says the thalweg is too long.

Item 3 – Tales from Rosgen Training in Arkansas

Cyndi and **Ralph** took the second Rosgen training in Arkansas earlier in the Fall, and asked the Big Guy a few questions about our work. On the issue of making reference curve measurements at formerly stable but now discontinued USGS gages, he recommended:

- Remeasure the cross-section and see if it compares to previous data
- Get a bankfull discharge estimate and compare to previous data

Pat added that noting land use changes would also be valuable when deciding if a defunct gage is still a good spot for measurements, and that sandy watersheds are more 'forgiving' of moderate land use changes.

Item 4 – 2007 Training

Our first course of "Geomorph II" will be held in Lansing the week of June 25. Details:

- Field sites will be the Battle Creek River near Charlotte and Carrier Creek in Lansing.
- Course lectures will be at the Horatio Earle Learning Center at the State Secondary Complex, southeast of Lansing.
- **Cyndi** may host a BBQ at her home for the social on Monday evening.
- A subcommittee was formed to arrange details of the training; lodgings, food, t-shirts for the field teams, transportation in the field, etc. This subcommittee later met at the MDNR building on Jan. 17, and will meet again after the next meeting.

Joe R. noted that the University of Wisconsin will bring its 3-day dam removal short course to Lansing, probably in early November 2007. Details will be forthcoming.

Item 5 – Stream Team Web Page Management

Several issues pertaining to the Stream Team web page were discussed, and the major decision made was that new items such as data reports will require Team approval before they are posted. **Pat** suggested that draft items could be posted if they were marked as such.

Item 6 – Stream Team Power Point Presentations

At an earlier meeting **Joe R.** committed to put together a list of available power point talks that might be of use to the Team. Making the full talks available to Team members was discussed, and it was noted that talks posted on the Team web site would be available to the outside world, too. If this is judged to be undesirable, the talks could be copied to CDs and given to Team members.

Item 7 – Items of Importance from Those in Attendance

- At the next meeting we should discuss the process for approving postings to the Stream Team web page.
- Contacts on the list serve will be limited to staff from agencies already on the Team.

<u>Next Meeting:</u> Tuesday, January 30, 2007, from 9:00 to 12:00 AM at the State Secondary Complex in Lansing.

(Recorded by Joe Rathbun, MDEQ)